

NOMENCLATORIAL NOTES ON THE AGRILINAE
(COLEOPTERA: BUPRESTIDAE):
III. *PACHYSCHELUS* AND *HYLAEOGENA*¹

Henry A. Hespdenheide²

Recent examination of types of members of the subfamily Agrilinae of the Buprestidae in the British Museum and the U.S. National Museum has revealed a number of necessary nomenclatorial changes. Studies on the larval biology of certain of these forms by Vogt and collaborators (in prep.) require certain of these changes to be published. Study of these types is part of a general study of the biogeography and ecology of the subfamily in Central America.

The genus *Pachyschelus* presently includes about 265 species (Blackwelder, 1944) distributed primarily in the Americas, but with a dozen species in the Old World, principally in Southeast Asia. Of these, 87 named forms have been described or reported from Central America. Some of these, however, belong to the genus *Hylaeogena*, which was described by Obenberger in 1923 after many species had been described by Waterhouse and Fisher. *Hylaeogena* presently includes 61 species of which 16 named forms have been recorded from Central America. After the changes suggested here, 72 forms of *Pachyschelus* and 27 of *Hylaeogena* would be recognized. The following species of Waterhouse, Kerremans and Fisher have been arranged for consideration in alphabetical order.

Pachyschelus Solier

Pachyschelus affinis Waterhouse, 1889: 143. Only two of the three specimens reported by Waterhouse are presently in the British Museum. The specimen bearing the labels "V. Chiriqui, 3-4000 ft. Champion" and, partially handwritten, "*Pachyschelus affinis*, (Type) Waterh." is here designated as the Lectotype. It is a female for, as Fisher pointed out (1922:6), Waterhouse consistently considered males females, and vice versa.

Pachyschelus ardens Waterhouse, 1889: 144. Four specimens in the British Museum can be considered types. One of these — a female bearing the labels "Cordova Mexico, Salle Coll." and, partly handwritten "*Pachyschelus ardens*, (Type) Waterh." is designated as the Lectotype. Two other specimens labelled "Cordova Mexico, Salle Coll." and one labelled just "Mexico, Salle Coll 784" are considered paratypes.

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² Biological Sciences Group, University of Connecticut, Storrs, CT 06268. Present address: Department of Biology, University of California, Los Angeles, CA 90024.

Pachyschelus bifasciatus Waterhouse, 1889: 151. Synonym: *P. carmineus* Kerremans, 1894: 420, New Synonymy. Types of both species are unique females in the British Museum. The type of *carmineus* is identical to that of *bifasciatus* except that the teeth on the anal comb of *carmineus* are worn down or broken off, except for the outermost teeth.

Pachyschelus biguttatus Waterhouse, 1889: 153. A total of 11 specimens in the British Museum can be considered type material. One of these is a female and bears the labels "V. Chiriqui 25-4000 ft. Champion" and, partly handwritten, "Pachyschelus biguttatus, (Type) Waterh."; it is here designated as the Lectotype. A male bearing the handwritten label "V. de Chiriqui, 3000 ft. Champion" is designated as the Lecto-allotype. Specimens considered to be paratypes bear the same label as the lectotype, as well as the following: "V. de Chiriqui, 3-4000 ft. Champion"; "Bugaba, 800-1500 ft. Champion"; "Bugaba, Panama. Champion"; and "David, Panama. Champion".

Pachyschelus communis Waterhouse, 1889: 141. Synonym: *P. familiaris* Waterhouse, 1889: 141, New Synonymy. The type series of *P. communis* includes 18 specimens on 13 pins. All bear the data "Taboga I. Panama, Champion." One male specimen bears the additional, partly handwritten label "Pachyschelus communis, (Type) Waterh." and is designated the Lectotype. A second, female specimen bears the additional label "Pachyschelus communis (Type) Waterh." and is designated the Lecto-allotype. Two specimens can be considered types of *P. familiaris*. A male bears the labels "Teapa, Tabasco March. H.H.S." and, partly handwritten, "Pachyschelus familiaris, ♀ (Type) Waterh."; it is designated the Lectotype. The second specimen is a female and bears the same collecting data except that the month is "Feb." rather than March, as well as a second label - "Pachyschelus familiaris, ♂ (Type) Waterh.". The second specimen is designated a Lecto-allotype. Waterhouse expressed doubts about the distinctness of these forms (1889: 142), and separated them solely on differences in color. The male genitalia of this species is very distinctive among all those seen within the genus by the author and identical between the two types.

Pachyschelus dubius Waterhouse, 1889: 143. Three specimens in the B. M. can be considered type material. A female specimen with the label "Teleman, Vera Paz. Champion." also bears the partly handwritten label "Pachyschelus dubius (Type) Waterh."; it is designated the Lectotype. Two other females can be considered paratypes: one bears the label "V. de Chiriqui, 25-4000 ft. Champion"; the other has the same label, except for the altitude, which is "2-3000 ft."

Pachyschelus incertus Waterhouse, 1889: 142. The type is unique. It is certainly distinct from *communis*, although Waterhouse expressed doubt in the original description.

Pachyschelus irroratus Waterhouse, 1889: 149. Two specimens in the British Museum could be considered types. Both bear the label "Mazatlan, Sinaloa Hoge." One of these, a female, bears the additional, partly handwritten label "Pachyschelus irroratus, (Type) Waterh." and is here designated the Lectotype. The other specimen is a male and is designated a Lecto-allotype.

Pachyschelus octodentatus Waterhouse 1889: 142. This species, whose hosts are various species of *Desmodium*, is perhaps the most common species of the genus in Central America. Waterhouse separated two species on slight, relative difference between specimens from Panama on the one hand, and Guatemala on the other. Specimens from southern Mexico and Guatemala do tend to be larger than those from Costa Rica and Panama, but the male genitalia and female anal combs are identical. In view of the consistent geographic differences, it seems worthwhile to retain both names as subspecies.

Eleven specimens in the British Museum can be considered types of *P. octodentatus*. Two of these on a card bear the labels "Bugaba, Panama. Champion" and, partly handwritten, "Pachyschelus octodentatus, (Type) Waterh.". Of these two, the right-

hand specimen is a male and is here designated the Lectotype; the left-hand specimen is a female and is designated the Lecto-allotype. The other specimens are considered paratypes and bear the label above or "Bugaba, 800-1500 ft. Champion" or "David, Panama. Champion."

Pachyschelus octodentatus robustus Waterhouse, 1889: 141, New Combination. Eleven specimens on 6 pins could be considered types of *P. robustus*. Two of these on a card bear the labels "San Geronimo, Vera Paz. Champion." and, partly handwritten, "Pachyschelus robustus, (Type) Waterh." Of these two, the left-hand specimen is a male and is here designated the Lectotype; the right-hand specimen is a female and is designated the Lecto-allotype. The other specimens bear the same data label or one of two variants: "S. Geronimo, Guatemala Champion." or "S. Geronimo. 3000 ft. Champion."

Pachyschelus pubicollis Waterhouse, 1889: 153. Ten specimens in the British Museum could be considered types. A female bearing the handwritten label "Taboga I. Champion" also bears a partly handwritten label "Pachyschelus pubicollis, (Type) Waterh." and is here designated the Lectotype. A male bearing the label "Toboga Isl. Panama. Champion" is here designated the Lecto-allotype. Eight other specimens which could be considered types bear the latter label, or one of the following: "San Juan Vera Paz. Champion."; "Teapa, Tabasco. Feb. H.H.S."; "Teapa, Tabasco. March H.H.S."; or "San Miguel. Pearl Isl. Champion."

Pachyschelus purpureipennis Waterhouse, 1889: 144. Five specimens in the British Museum could be considered types. Four of these, on 3 pins, bear the label "Bugaba, Panama. Champion", and the fifth "V. de Chiriqui, 25-4000 ft. Champion". A female from Bugaba also bears the partly handwritten label "Pachyschelus purpureipennis, (Type) Waterh." and is here designated the Lectotype. A single male from Bugaba is here designated a Lecto-allotype.

Pachyschelus purpureus (Say, 1836: 164). Recent extensive biological studies by Vogt and collaborators (in prep.) suggest that the following names refer to series of apparently interbreeding populations that range from northeastern United States well into South America. Examination of types shows only minor differences in morphology. The beetles occur on a variety of host plants, primarily *Geranium maculatum* L. (*P. p. purpureus*) and species of *Acalypha* (other subspecies). The host relationships will be discussed in further papers by Vogt and others and only morphological characteristics will be considered here. Each of the subspecies referable to this polytypic species shares with little differentiation the following major morphological characters: male genitalia, female anal comb, and a subterminal band of more or less dense pubescence. The forms differ most conspicuously in the amount of pubescence on the elytra and the color of the metallic reflections on the elytra. In addition to the nominate race, the following subspecies are recognized:

Pachyschelus purpureus waldei Knull 1941: 387, New Combination. This form was described from south Texas and recorded by Knull from *Acalypha hederacea* Torr. The subspecies is smaller than typical *P. p. purpureus*, has violaceous rather than bluish or greenish metallic reflections on the elytra, and is characterized by uniform pubescence on the elytra in addition to medial and apical bands of condensed pubescence.

Pachyschelus purpureus bicolor Kerremans, 1894: 420, New Combination. This form is more like nominate *purpureus*, but is smaller, has more bluish or violaceous reflections on the elytra, two medial spots of pubescence on the elytra, and uses *Acalypha* as the larval host. It ranges from Mexico through Pacific coastal Central America at least as far as Costa Rica. The type of *bicolor* is a unique female at the British Museum.

Pachyschelus purpureus azureus Waterhouse, 1889: 152, New Combination. This subspecies was described from Atlantic coastal Guatemala, has bluish-green metallic

reflections on the elytra, and lacks elytral pubescence except for the apical bands. Seven specimens in the British Museum can be considered type material of *P. azureus*. Two specimens bear the data "Chiacaman, Vera Paz. Champion.," one of these, a female, also bears the partly handwritten label "*Pachyschelus azureus*, (Type) Waterh." and is designated the Lectotype. The other specimen is a male and is designated the Lecto-allotype. Specimens with the following labels are considered paratypes: "El Zumbador, 2500 ft. Champion", two specimens on a card; "Chacoj Vera Paz. Champion," the left hand specimen only — the right hand specimen is *P. biguttatus* Wat.; and "Cahabon, Vera Paz. Champion.", two specimens on a card.

Pachyschelus secedens Waterhouse, 1889: 145. Synonym: *Brachys chapuisi* Dugès, 1891: 36. New Synonymy. Six specimens bear the label "Tupataro Guanajuato. Hoge." and can be considered types of *P. secedens*: One female bears the additional partly handwritten label "*Pachyschelus secedens*, (Type) Waterh." and is here designated the Lectotype. Another specimen, a male, is designated the Lecto-allotype. The others are considered paratypes. Fisher (1922 : 35) pointed out that the name *Brachys chapuisi* Dugès belonged in *Pachyschelus* on the basis of one of Dugès' specimens in the U.S. National Museum. Examination of that specimen shows it to be identical with material compared with the type of *secedens*.

Pachyschelus signatus Waterhouse, 1889: 150. It is obvious from Waterhouse's discussion that the specimen in the British Museum labelled "Cahabon, Vera Paz. Champion." should be considered the Holotype; it is a female and it bears a second label, partly handwritten, "*Pachyschelus signatus*, (Type) Waterh." There are no specimens presently in the British Museum from "Chiacam," although that locality is cited by Waterhouse as a type locality. Two cards each bear two specimens with the specimens with the data "San Juan, Vera Paz. Champion." Only one specimen on each card, however, is identical with the type and can therefore be considered a paratype.

Pachyschelus sticticus Waterhouse, 1889: 153. Eight specimens in the British Museum could be considered types. Five of these bear the label "San Juan, Vera Paz. Champion.," one of which, a female, bears the additional label "*Pachyschelus sticticus*, (Type) Waterh." and is here designated the Lectotype. A male specimen with the label "Senahu, Vera Paz. Champion." is here designated the Lecto-allotype. A specimen labelled "Tamahu, Vera Paz. Champion." and the other specimens from San Juan are considered paratypes.

Pachyschelus trapezoidalis Waterhouse, 1889: 151. Five specimens on three pins in the British Museum bear the label "Chilpancingo, Guerrero, 4600 ft. June. H. H. Smith." One card of two specimens bears the additional, partly handwritten label "*Pachyschelus trapezoidalis*, (Type) Waterh.," the specimen on the right is a female and is designated the Lectotype. The specimen on the left is a male and is designated the Lecto-allotype. The other 3 specimens are considered paratypes.

Pachyschelus undulatus Waterhouse, 1889: 151. Synonym: *P. atrifrons* Fisher, 1922: 25, New Synonymy. Three specimens in the British Museum can be considered types of *undulatus*. A female bearing the labels "Bugaba, Panama. Champion." and, partially handwritten, "*Pachyschelus undulatus*, (Type) Waterh." is designated here to be the Lectotype. A male bearing the label "San Lorenzo, Panama. Champion." is designated a Lecto-allotype. Another male with the label "Bugaba, 800-1500 ft. Champion." is considered a paratype. Fisher's male type of *atrifrons* is identical to a male compared with and identical to the Lecto-allotype of *undulatus*; the male genitalia are unusual in the genus.

Hylaeogena Obenberger

The characters which distinguish the genus *Hylaeogena* have been systematically compared to those of *Pachyschelus* by Obenberger in his general revision of the two

genera in 1925. Beside the morphological characters, *Hylaeogena* is unified by its nearly exclusive preference for members of the Bignoniaceae as the larval host (G. B. Vogt and the author, unpubl. observations).

Hylaeogena astraea (Waterhouse, 1889: 147). Four specimens in the British Museum can be considered types. A female bearing the labels "Sept. bre.," "Cordova Mexico, Salle Coll.," and, partly handwritten, "Pachyschelus astraeus. (Type) Waterh.," is here designated as the Lectotype. A male bearing the labels "Cordova Mexico Salle Coll." and "754" is designated a Lecto-allotype. One other specimen from Cordova and a specimen labelled "Atoyac, Vera Cruz. April H.H.S." are considered paratypes.

Hylaeogena atroviridis (Fisher, 1922: 13), New Combination.

Hylaeogena centralis (Waterhouse, 1889: 148), New Combination. Two specimens in the British Museum mounted on a single card bear the labels "El Zumbador, 2500 ft. Champion." and "Pachyschelus centralis. (Type) Waterh." The right-hand specimen is designated the Lectotype. The left-hand specimen is considered a paratype.

Hylaeogena cincta (Waterhouse, 1889: 149), New Combination. Three specimens in the British Museum qualify as types. A female bears the labels "V. de Chiriqui, 3-4000 ft. Champion." and, partly handwritten, "Pachyschelus cinctus. (Type) Waterh." and is designated the Lectotype. Two other specimens considered paratypes bear the labels "V. de Chiriqui, 2-3000 ft. Champion." and "Rio Maria Linda, 500 ft. Champion."

Hylaeogena compacta (Waterhouse, 1889: 138). This species was described by Waterhouse with a number of varieties. These varieties represent very similar but distinct species. There are 17 specimens in the British Museum considered to be typical *compactus* by Waterhouse. Ten of these bear the label "V. de Chiriqui, 25-4000 ft. Champion." One of these bears the additional partly handwritten label "Pachyschelus compactus. ♀ (Type) Waterh." and is designated the Lectotype. A second specimen bears the additional label "Pachyschelus compactus ♂ (Type) Waterh." and is designated a Lecto-allotype. The other 8 specimens in this series, plus the following 6, are considered paratypes: 2 specimens with the label "V. de Chiriqui, 3-400 ft. Champion.," 4 specimens on 3 pins with the label "Bugaba, 800-1500 ft. Champion.," one specimen with the label "Bugaba, Panama. Champion."

Hylaeogena constans (Waterhouse, 1889: 137). Sixteen specimens in the British Museum can be considered types. Eight bear the label "V. de Chiriqui, 3-4000 ft. Champion." Two of these on a card, both females, bear the additional handwritten label "Pachyschelus constans. (Type) Waterh.,"; the left-hand specimen is designated the Lectotype. The other 7 specimens in this series are considered paratypes, as are 8 specimens with identical data except for the altitudes, which are "25-4000 ft." (6 specimens) or "2-3000 ft." (2 specimens).

Hylaeogena discoidalis (Waterhouse, 1889: 145), New Combination. The type is unique.

Hylaeogena festiva (Fisher, 1922: 14), New Combination.

Hylaeogena hydroporoides (Waterhouse, 1889: 140). There are 11 specimens in the British Museum that can be considered types. Three of these on 2 pins bear the label "S. Geronimo, Guatemala, Champion." One of these, a male, bears the additional, partly handwritten label "Pachyschelus hydroporoides (Type) Waterh." and is here designated the Lectotype. Specimens considered paratypes bear the following additional labels: "Chacoj, Vera Paz, Champion.," "Belize, Blancaneaux." (2 specimens); "Rio Hondo, B. Honduras, Blancaneau.," "Costa Rica, Van Patten.," "V. de Chiriqui, 2-3000 ft. Champion." (2 specimens); and "V. de Chiriqui, 25-4000 ft. Champion."

Hylaeogena lunifer (Waterhouse, 1889: 148), New Combination. The female type is unique.

Hylaeogena modesta (Waterhouse, 1889: 147), New Combination. Although two specimens in the British Museum carry handwritten labels indicating they were considered types by Waterhouse, only one of these is cited at the beginning of the descrip-

tion; the second is referred to as a variant in the description. The specimen bearing the labels "Bugaba, Panama. Champion." and, partly handwritten, "Pachyschelus modestus (Type) Waterh." is therefore considered here to be the unique Holotype. The second specimen bears the label "V. de Chiriqui, 2-3000 ft. Champion." A third specimen, also cited in the text of the description, bears the label "David, Chiriqui. Champion."; these last two may be considered paratypes.

Hylaeogena ovalis (Waterhouse, 1889: 140), New Combination. Five specimens in the British Museum can be considered types. A female with the label "S. Geronimo, Guatemala. Champion." also bears the partly handwritten label "Pachyschelus ovalis (Type) Waterh." and is here designated the Lectotype. Specimens are considered paratypes which bear the labels "El Zumbador, 2500 ft. Champion." (2 specimens on a card); "Chiacaman, Vera Paz. Champion."; and "Rio Hondo, B. Honduras. Blancaneau."

Hylaeogena pilosa (Fisher, 1922: 16), New Combination.

Hylaeogena rotundipennis (Fisher, 1922: 11), New Combination.

Hylaeogena thoracica (Waterhouse, 1889: 139), New Combination. Two specimens in the British Museum could be considered types of *thoracicus*. A female bearing the label "Chiacaman, Vera Paz. Champion." also bears the label "Pachyschelus thoracicus, (Type) Waterh." and is here designated the Lectotype. The second specimen, labelled "Capetillo, Guatemala. G. C. Champion." also bears the label "Pachyschelus thoracicus, var. Waterh.", but is considered a paratype.

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ABSTRACT. The taxonomic status of 40 names referable to the genera *Pachyschelus* and *Hylaeogena* in Central America is reviewed. Lectotypes are designated for 24 names proposed by Waterhouse, 4 new synonymies are established, and 11 species are transferred to *Hylaeogena* from *Pachyschelus*. *P. octodentatus* Wat. and *P. purpureus* (Say) are considered geographically polytypic and 4 other specific names are subsumed as subspecies under these two.